

### REMARKS

The April 10, 2003 office action rejected all claims on obviousness grounds under 35 U.S.C. § 103(a). Claims 1-8, directed to methods for use in wireless equipment, and claims 9-16, directed to apparatus for use in wireless equipment, were rejected as unpatentable over U.S. Patent No. 6,272,354 to Saario in view of U.S. Patent No. 6,473,624 to Corbett et al. ("Corbett"). Claims 17-19, directed to a transmission frame representing data embodied in a wireless transmission signal, were rejected as unpatentable over Saario in view of Corbett and U.S. Patent No. 5,946,634 to Korpela. Applicant requests reconsideration and further examination of the application in view of the foregoing amendments and these remarks.

The present invention applies to control of downlink transmit power in the multiple base stations involved in a soft handoff of a wireless terminal (sometimes referred to in the application as "user equipment" or "UE"), such as a mobile terminal in a CDMA cellular telephone system. During a soft handoff of a mobile terminal, it is in communication over user channels with two or more base stations. In accordance with the invention, the mobile terminal transmits information for use in control of base station user channel downlink transmit power, and a reference power for use by the base stations is determined based in part on the information received from the mobile terminal.

Saario, the principal reference relied upon by the Examiner, is not directed to soft handoffs. Although Saario relates to transmit power control, Saario is not directed to control of *base station* transmit power; rather, it is directed to control of *mobile terminal* transmit power in a system where the mobile terminal power initially is set low and then is raised to a target level. Saario discloses methods of determining, *prior to call setup*, the level to which the mobile terminal transmit power will be raised after the call is made.

Thus, as a general matter, modification of Saario to form the claimed invention is inappropriate. No reason is suggested as to why a person of ordinary skill in the art would modify a system for pre-setup determination of a mobile terminal transmit power level that will be used in communications with a single base station, as disclosed by Saario, for purposes of controlling the transmit power of multiple base stations during their simultaneous communication with a mobile terminal in a soft handoff.

Saario's system involves determinations made in a mobile terminal and control by a mobile terminal of its own transceiver's transmit power based on signals received by the mobile

terminal. Before the communication channel is established, the mobile terminal estimates a signal-to-noise ratio value desired for its signal to have after the call is set up when its signal is received by the base station. The mobile terminal receives a pilot signal from the base station, and, on a control channel, receives, from the base station data representing the base station's pilot signal transmit power and the interference power level at the base station. The mobile terminal measures the power level of the pilot signal as received by it, and computes the channel attenuation based on its measurement of received pilot signal power and the pilot signal transmit power data reported by the base station. The Saario mobile terminal then computes the power level at which it must transmit signals in order for those signals, after being attenuated by the computed channel attenuation, to be received at the base station at a power level, with respect to the reported interference power, that provides the target signal-to-noise ratio at the base station.

Various aspects of the present invention include the determination by a mobile terminal of certain parameters relating to the user channel signals received from the base stations involved in a soft handoff with the mobile terminal; the transmission of those parameters by the mobile terminal; the receipt of those parameters by wireless equipment at a control point such as a radio network controller; the determination by the wireless equipment of a user transmit power reference for the base stations, which reference is based on the parameters transmitted by the mobile terminal; and the transmission of the user transmit power reference by the wireless equipment to the base stations. According to the amended claims, the parameters that are determined by, transmitted by, and/or received from the mobile terminal to include: an excess signal-to-noise ratio value; or the identity of a base station whose signal as received by the mobile terminal is stronger than other received base station signals; or both. The pending claims are patentable, among other reasons, because of these limitations; they render the claims patentable for the following reasons.

As used in the application, an excess signal-to-noise ratio value is a parameter indicating a comparison of the signal-to-noise ratio of received user channel signals with a target signal-to-noise ratio value maintained by the user equipment. See, e.g., page 6, lines 9-13 and page 7, lines 26-30 of the specification. The cited art does not disclose such an excess signal-to-noise ratio. Original claims 3, 8, 11, 13, and 16 contained such excess signal-to-noise ratio limitations and were rejected based on Saario's abstract and Saario's claim 1 (at col. 8, lines 2-26). That ground for rejection was inapt. Although Saario discloses a target signal-to-noise ratio desired

for the signals received at the base station from a mobile terminal, Saario does not disclose a target signal-to-noise ratio value for signals received at the mobile terminal from base stations. Although Saario discloses estimation by a mobile terminal of a target signal-to-noise ratio of signals it will transmit when the signals reach the base station, Saario does not disclose a mobile terminal that measures the signal-to-noise ratio of user channel signals it receives from a base station, or comparison of such measured signal-to-noise ratios with a target value for the signal-to-noise ratio to calculate an *excess* signal-to-noise ratio value.


The cited art also does not disclose measurement by a mobile terminal of the signal strength of the user channel signals received at the mobile terminal from the multiple base stations involved in a soft handoff, determination by the mobile terminal of the relative signal strength of those received signals, and transmission by the mobile terminal of data representing the *identity* of a base station whose received user channel signal strength has been measured by the mobile terminal as greater than that measured for other received user channel signals. In rejecting claims 4, 6, 12, 14, and 17, which set forth such operation, the Examiner relied on Corbett at col. 7, lines 51-55 and col. 8, lines 34-42 and 49-53. The cited portions of Corbett do not disclose the claimed subject matter. Rather, they disclose that the mobile terminal transmits only signal quality indicators, and that the determination of a dominant base station is performed by the radio network controller, not by the mobile terminal.

Because the determination and transmission of base station identity and excess signal-to-noise ratio information is non-obvious, a transmission frame having such information as claimed in claims 17-19 is non-obvious.

In view of the above amendments and remarks, it is believed that the pending claims are in condition for allowance. Early and favorable action is respectfully solicited.

Respectfully submitted,

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